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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,514	09/18/2003	Jung-Min Ro	678-1270 (P11303)	9188

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EXAMINER

HARPER, KEVIN C

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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12/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/666,514	Applicant(s) RO ET AL.	
	Examiner Kevin Harper	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-10 and 12-23 is/are rejected.
- 7) ☒ Claim(s) 5 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

Applicant's arguments filed September 28, 2007 have been fully considered but they are not persuasive.

1. Applicant argued that Magee does not disclose copying a unique words in a guard interval. However, the guard interval is represented cyclic prefix and postfix (v and L, respectively). The L portion is copied to the from of the burst and the v portion is copied to the tail of the burst (item 140).
2. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Magee provides guard interval data for an OFDM burst and Kjeldsen in the same field of endeavor teaches the use of CAZAC properties to aid in the transmission of symbols.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-4, 6-10 and 12-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magee et al. (US 2003/0227978) in view of Kjeldsen et al. (US 2003/0231714).

Art Unit: 2616

3. Regarding claims 1-4, 7-8, 10 and 14, Magee discloses a method of transmitting an OFDM symbol (fig. 1), where the symbol includes a guard interval (fig. 1, item 130, L and V) and a data interval (item 140). The method comprises copying data in a data row to be transmitted (fig. 1, item 140; para. 5; note: cyclic prefix and postfix), filling the copied data (V) and unique words (L) in the guard interval (L+V of item 140), and transmitting the OFDM symbol (item 145). Further regarding claim 10, the second copied data is the cyclic postfix L (fig. 1), representing the unique words. Further regarding claim 14, an apparatus performs the method and comprises a guard interval filling means and a selection means (para. 5, lines 3-5).

4. However, Magee does not disclose providing unique words having a constant amplitude and non-periodic auto-correlation characteristic. Kjeldsen discloses providing a unique word having CAZAC properties (para. 70, last eight lines; para. 71, lines 1-4). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have unique words in the guard interval of Magee that provide a constant amplitude and non-periodic auto-correlation characteristic in order to better detect the OFDM symbol (Kjeldsen, para. 71, lines 4-10).

5. Regarding claims 6, 9 and 13, the unique words are pilot data (fig. 1; note cyclic postfix for determining OFDM symbol boundaries).

6. Regarding claim 12, the cyclic prefix L is copied at the end of a second data row portion (fig. 1).

7. Regarding claim 15, Magee in view of Kjeldsen does not disclose a buffer and a control unit. However, one skilled in the art would recognize that a buffer and a control unit are common components for a CPE equipment. Therefore, it would have been obvious to provide a

Art Unit: 2616

buffer for storing unique words and a control unit for controlling a selection means in the invention of Magee and Kjeldsen in order to provide proper implementation of the method.

8. Regarding claims 16, 18 and 20-22, these limitations have been addressed in the rejection of claim 1 above (fig. 1; note the guard interval represents the cyclic prefix located before and after the data symbol, and the unique words represent the cyclic postfix L located before and after the data symbol).

9. Regarding claims 17, 19 and 23, the function of the apparatus and the location of data words do not provide a structural difference from the prior art (MPEP 2114).

Allowable Subject Matter

10. Claims 5 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2616

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Harper whose telephone number is 571-272-3166. The examiner can normally be reached weekdays from 11:00 AM to 7:00 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild, can be reached at 571-272-2092. The centralized fax number for the Patent Office is 571-273-8300. For non-official communications, the examiner's personal fax number is 571-273-3166 and the examiner's e-mail address is kevin.harper@uspto.gov.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications associated with a customer number is available through Private PAIR only. For more information about the PAIR system, see portal.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin C. Harper

December 10, 2007